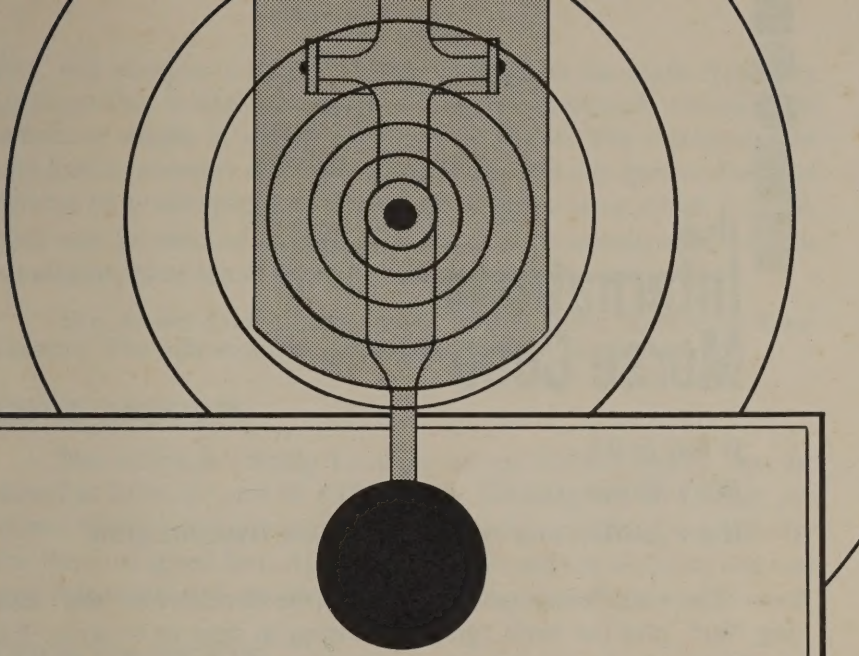


Learning the

International Morse Code

USE THIS SUPPLEMENT
ALONG WITH YOUR

ARCHER

CODE RECORD OR CASSETTE

A step by step method
by which you learn
to send and receive

the International Morse Code

What is it?
Why do we use it?
How is the code related to voice transmission?

The word "telegraph" comes from the Greek word "tele" meaning "far", plus the word "graph" meaning to send or to write. Early civilization used at least two forms of telegraph which made it possible to send messages over long distances (beyond the range of the human voice), by means of smoke signals and by beating drums. The story of Samuel F. B. Morse and his work with the electric telegraph is familiar to most of us; this was the beginning of the codes as we think of them today. The letters of the alphabet, numerals, punctuation marks and signals are all made up of combinations of short and long sounds known as dots and dashes, respectively. The first message sent over the Washington to Baltimore telegraph line in 1844: "What hath God wrought?", used a code considerably different from the code you are to learn with your new *Archer Code Course*. The original American Morse Code consists of dots and dashes, just as the International code uses dots and dashes, but was designed for use with a sounder or ticker, rather than tones or buzzes.

The International Morse Code is the language of radio operators the world over, and when you have learned to send and receive your new language, you will want to become a radio operator – amateur or commercial.

WHY USE THE CODE?

If you pick up the telephone you will find it far simpler to converse with the person at the other end of the line using normal voice communication. It would be far more time consuming to send a message consisting of long and short bursts of sound. Voice communication (telephony) came long after the telegraph and while its basic principles are similar, telephony requires more equipment, is far more com-

plex, and occupies a greater amount of space in the audio-frequency spectrum than a single telegraph tone. A radiotelegraph transmitter is extremely simple in construction and operation. The distances over which code messages may be received is considerably greater than that covered by a radiotelephone transmitter using the same power. Further, code may be received through all types of radio interference, whereas a radiotelephone signal might be quickly lost in the noise.

The *Archer Code Course* comes in two forms, Record or Tape Cassette. The following are instructions for using either.

CODE RECORD

This course is actually 3 courses on one 12-inch Disc. It may be played at 33⅓, 45 and 78 RPM, giving a code speed of 7 words per minute, 9 words per minute, and 14-15 words per minute, respectively. Use the slow speed first. After you have learned the alphabet and can copy reasonably well, use the higher speeds to increase your proficiency.

CODE CASSETTE

This consists of 12 lessons, the first part is at a code speed of 7 words per minute with voice announcements prior to subsequent sections at 9 words per minute and 15 words per minute. The 9 and 15 word per minute sections are lesson 10 at the higher speeds. Use the slow speed first. After you have learned the alphabet and can copy reasonably well, use the higher speeds to increase your proficiency.

LEARNING THE CODE

The letters, numerals and punctuation marks will be learned scientifically, in accordance with a particular pattern. The most important principle is to learn the letter, punctuation mark or numeral by the combinations of the short and long sounds of which International Morse Code is composed. These short and long sounds are represented by dots and dashes respectively when writing the code. However, when learning the code, think of the characters in terms of their sound—not in terms of the dots and dashes. The sound of the dot is "dit" while that of the dash is "dah". Thus, the letter A (•-) is actually "didah", sent consecutively with practically no space between these two individual sounds. The letter B(-•••) is really "dahdididit". The letter C (-•-•) is "dahdidahdit". If you think in terms of dits and dahs, you'll be well on your way toward learning to copy each character as you hear it.

You have already learned three letters and you have also learned to send them. However, our code course will not take the letters alphabetically; rather, we shall learn the simplest letters first, then gradually build by adding those which are somewhat more difficult. Following

the teaching of each new letter, simple words will be sent, combining the new letter with those learned previously.

SPACING

The letter E (dit) is the basic unit of time in the International Morse Code, and is one time unit. The letter T (dah) is three times the length of the E or dit. The space between parts of a letter is equal to about one time unit; the space between letters equals three time elements, while the space between words is equivalent to five dits.

THE INTERNATIONAL MORSE CODE ALPHABET

LETTER	COMPOSED OF:	SOUNDS LIKE
A	• —	di*dah*
B	— • • •	*dah*dididit
C	— • — •	*dah*di*dah*dit
D	— • •	*dah*didit
E	•	dit
F	• • — •	didi*dah*dit
G	— — •	*dahdah*dit
H	• • • •	didididit
I	• •	didit
J	• — — —	di*dahdahdah*
K	— • —	*dah*di*dah*
L	• — • •	di*dah*didit
M	— —	*dahdah*
N	— •	*dah*dit
O	— — —	*dahdahdah*
P	• — — •	di*dahdah*dit
Q	— — • —	*dahdah*di*dah*
R	• — •	di*dah*dit
S	• • •	dididit
T	—	*dah*
U	• • —	didi*dah*
V	• • • —	dididi*dah*
W	• — —	di*dahdah*
X	— • • —	*dah*didi*dah*
Y	— • — —	*dah*di*dahdah*
Z	— — • •	*dahdah*didit

NUMERALS

NUMBER	COMPOSED OF:	SOUNDS LIKE
1	• — — — —	di*dahdahdahdah*
2	• • — — —	dididi*dahdahdah*
3	• • • — —	dididi*dahdah*
4	• • • • —	didididi*dah*
5	• • • • •	dididididit
6	— • • • •	*dah*dididididit
7	— — • • •	*dahdah*dididit
8	— — — • •	*dahdahdah*didit
9	— — — — •	*dahdahdahdah*dit
Ø	— — — — —	*dahdahdahdahdah*

In order to distinguish the numeral zero from the letter O, the zero is represented by the 0 with a diagonal line drawn through it (Ø).

PUNCTUATION

CHARACTER	COMPOSED OF:	SOUNDS LIKE
Period	•–•–•–	di*dah*di*dah*di*dah*
Comma	––••––	*dah*dah*di*di*dah*dah*
Question mark	••––••	di*di*dah*dah*didit
Parentheses	–•––•–	*dah*di*dah*dah*di*dah*
Apostrophe	•––––•	di*dah*dah*dah*dah*dit
Semicolon	–•–•–•	*dah*di*dah*di*dah*dit
Colon	–––•••	*dah*dah*dah*dididit
Quotation marks	•–••–•	di*dah*di*di*dah*dit
Hyphen	–••••–	*dah*dididi*di*dah*
Fraction bar	–••–•	*dah*di*di*dah*dit
Error	••••••••	dididididididit
Dollar sign	•••–••–	dididi*dah*di*di*dah*

SOME SPECIAL SIGNALS

CHARACTER	COMPOSED OF:	SOUNDS LIKE
$\overline{\text{AR}}$ (end of message)	•–•–•	di*dah*di*dah*dit
Attention	–•–•–	*dah*di*dah*di*dah*
Invitation to transmit (go ahead)	–•–	*dah*di*dah*
End of work	•••–•–	dididi*dah*di*dah*
International distress call (SOS)	••••––•••	dididi*dah*dah*dah*dididit
Test letter (V)	•••–	dididi*dah*
Received, ok	•–•	di*dah*dit
Wait sign (AS)	•–•••	di*dah*dididit

HOW TO STUDY CODE

An examination of the code (alphabet, numerals and punctuation marks) reveals that no two are alike. Thus, when you hear a particular combination of "dits" and "dahs", the character formed by that combination immediately pops into your mind and you write it down.

Spend perhaps one hour a day on code. You might even take your practice sessions in smaller bits – half hour in the morning, and the remaining half hour in the afternoon or evening. If you become tired or if your mind wanders, forget it – go back to it again later.

There is no substitute for practice. You are actually learning a new language and this requires constant daily practice. The time you put in on code practice will determine just how quickly you arrive at a particular copying speed. Don't worry about speed – copy slowly and carefully. Do not make corrections in your copy; if you miss a letter forget it. Speed will take care of itself – accuracy is more important.

SENDING

Thus far, we haven't mentioned the sending key, and we plan to leave this phase of your *Archer Code Course* until you have mastered some of the letters and numbers. You will begin by copying from the record. However, you may actually begin sending by speaking the letters in terms of their "dits" and "dahs" aloud or to yourself, imitating the rhythmic patterns you hear on the record. When you see a sign, translate its message into code characters, aloud or to yourself.

It will not take long before you are aware that the code characters require a definite sense of rhythm. Thus, the letter A is not sent as dit dah, but as didah. If you provide a space between the dit and the dah, you will actually be sending the letters E and T. Similarly, B should be sent as dadididit, C as dahdidahdit, etc. for the same reason.

LESSON NO. 1

In this first lesson we shall learn: **E I S H 5 T M O Ø.**

With your record player set to 33⅓ rpm, listen to the first 5 characters.

E dit
I didit
S dididit
H dididididit
5 didididididit

E E E I I I S S S H H H 5 5 5

Copy the following in groups of 5 characters:

ESEEI SIHEI HIESE SSEIH EEIIS SSSEI ISEIS
HIEHI SH5E 5EIE EI5E H5SI

Replay the first part of Lesson No. 1 until you have all of these "dit" characters fixed in your mind. Close the instruction manual; play this part of Lesson No. 1 and write down what you hear. Check your copy with the manual; when you have made an exact copy 3 times, you are ready to go to the next group. Do not go ahead to new letters and symbols until you have mastered these.

Listen to:

T dah
M dahdah
O dahdahdah
Ø dahdahdahdahdah

T T T M M M O O O Ø Ø Ø.

Copy the following in groups of 5 characters:

MOTOT TOTOM MOTTO TOTOT OTOTO
ØOTT TØTO OOTØ MØMT

Note that in groups containing a numeral, there are just 4 characters. This means that each number is the equivalent of 2 letters when copying plain language. The same rule applies to punctuation marks and to signals. Thus, a group containing two numerals or punctuation marks would have just a single letter to make a total count of 5 characters.

You have now learned 7 letters plus 2 numbers (5 and Ø). The simple words which follow will provide your first copy in plain language in International Morse Code.

IS HIS HE SHE SEE HIT

LESSON NO. 2

We shall now learn: **A N R K 1 (one) L F U V 9.**

Listen to:

A di**dah**
N **dah**dit
R di**dah**dit
K **dah**di**dah**
1 di**dahdahdahdah**

A A A N N N R R R K K K 1 1 1

Copy the following in groups of 5 characters:

ARNAK NNAAR RAANK 1K5 10K

Follow the procedure outlined in Lesson No. 1 until you have these characters fixed in your mind. Check your copy with the manual; when you have 3 perfect copies, continue with the second half of Lesson 2.

Listen to:

L di**dah**didit
F didi**dah**dit
U didi**dah**
V dididi**dah**
9 **dahdahdahdah**dit

L L L F F F U U U V V V 9 9 9

Copy the following in groups of 5 characters:

LUV9 FVLUF V9LU 9VFV FVFUL

You have now learned 15 letters plus 4 numbers. Follow the procedure outlined above before going on to Lesson No. 3.

Copy the following words:

FARM HORN SMOKE STROKE HARNESS HILLS

LESSON NO. 3

We shall now learn: **B D G X Z 6 W J P C Q Y 7**

Listen to:

B **dah**dididit
D **dah**didit
G **dahdah**dit
X **dah**di**didah**
Z **dahdah**didit
6 **dah**didididit

B B B D D D G G G X X X Z Z Z 6 6 6

Copy the following in groups of 5 characters:

XZBDG GXGZX DGBXZ 6GZX

Follow the procedure outlined in Lesson No. 1 until you have these characters fixed in your mind. Check your copy with the manual; when you have 3 perfect copies, continue with the second half of Lesson No. 3.

Listen to:

W di**dahdah**
J di**dahdahdah**
P di**dahdah**dit
C **dah**di**dah**dit
Q **dahdah**di**dah**
Y **dah**di**dahdah**
7 **dahdah**dididit

W W W J J J P P P C C C Q Q Q Y Y Y 7 7 7

Copy the following in groups of 5 characters:

YJPQY QPYJQ QCWYJ WJYQC 7CQW

You have now learned all of the 26 letters of the alphabet plus 6 of the numerals. Follow the procedure outlined above before going on to Lesson No. 4.

Copy the following words:

PRAY SLAY QUITE PHONE YOUNG ZOOM QUICK WOW

LESSON NO. 4

We shall now learn to copy cryptograms. When we copy letters in groups of 5, we say that we are copying "coded groups", which are used in cryptography. A cryptogram is a square of 5 letters across and 5 letters down. In order to make up this square of 25 letters, copy the first 5 letters across, the next 5 under the first 5, the third under the second group of 5, etc., until the fifth group of 5 is under the fourth line. Reading across will make no sense, but reading the columns from top to bottom yields 5 common 5-letter English words.

Copy the following crytograms:

SPBGP	SPPSC	APCAD	RPCMG
ERRRL	LRILR	PALNI	AALOR
AOAIA	IILOI	PNENN	VRIUE
TUSPC	CNOPS	LTAEE	ETFNA
SDSSE	ETTEP	ESNXR	NYFTT

LESSON NO. 5

We shall now learn: 2 3 4 8

Listen to:

2 didi**dahdahdah**
3 dididi**dahdah**
4 didididi**dah**
8 **dahdahdah**didit

2 2 2 3 3 3 4 4 4 8 8 8

Copy the following in groups of five numerals, reviewing the numbers 1 to 5 inclusive:

1 2 3 4 5 5 4 3 2 1 2 3 5 1 4 4 1 3 2 5 5 5 2 3 4

Follow the procedure outlined in Lesson No. 1 until you have these characters fixed in your mind. Check your copy with the manual; when you have three perfect copies, continue with the second half of Lesson No. 5.

Listen to:

6 **dah**didididit
7 **dahdah**dididit
8 **dahdahdah**didit
9 **dahdahdahdah**dit
Ø **dahdahdahdahdah**

Copy the following in groups of 5:

6 7 8 9 Ø Ø 9 8 7 6 6 Ø 8 9 7 7 9 6 Ø 8 8 9 7 Ø 6

You have now learned all of the numerals. Follow the procedure outlined above before going on to Lesson No. 6.

Copy the following in groups of 5 numerals:

2 9 8 Ø 2 2 6 3 5 7 4 9 5 1 3

LESSON NO. 6

We shall now learn: **period comma question mark double dash hyphen parentheses colon semicolon decimal point quotation marks error sign apostrophe fraction bar dollar sign**

Listen to:

period	(.)	di**dah**di**dah**di**dah**
comma	(,)	**dah**dah**di**di**dah**di**dah**
question mark	(?)	di**di**d**ah**d**ah**di**dit**
double dash*	(=)	**dah**di**di**di**dah**
hyphen	(-)	**dah**di**di**di**di**di**dah**
parentheses	()	**dah**di**dah**d**ah**di**dah**
colon	(:)	**dahdah**d**ah**di**di**di**t**

period period period comma comma comma question mark question mark question mark double dash double dash double dash hyphen hyphen hyphen parentheses parentheses parentheses colon colon colon

Copy the following punctuation marks:

period colon comma question mark hyphen colon comma parentheses comma double dash

*The double dash is known as the "break" signal, and it is often used in place of a period — a pause between ideas, and even between sentences. The most commonly used punctuation marks are: period, comma, question mark and the double dash or "break".

Follow the procedure outlined in Lesson No. 1 until you have these punctuation marks fixed in your mind. Check your copy with the manual; when you have 3 perfect copies, continue with the second half of Lesson No. 6.

Listen to:

semicolon	(;)	**dah**di**dah**di**dah**di**t**
decimal point*	(.)	di**dah**di**t**
quotation mark	(")	di**dah**di**di**d**ah**di**t**
error sign		di**di**di**di**di**di**di**di**di**t**
apostrophe	(')	di**dah**d**ah**d**ah**d**ah**di**t**
fraction bar	(/)	**dah**di**di**d**ah**di**t**
dollar sign	($)	di**di**di**dah**di**di**d**ah**

semicolon semicolon semicolon decimal point decimal point decimal point quotation mark quotation mark quotation mark error sign error sign error sign apostrophe apostrophe apostrophe fraction bar fraction bar fraction bar dollar sign dollar sign dollar sign

Copy the following punctuation marks:

quotation mark error sign apostrophe dollar sign fraction bar semicolon decimal point

**The decimal point and the letter R are the same.*

LESSON NO. 7

Now that you know all letters, numerals and punctuation marks, you are ready to copy text material. Close the instruction manual and copy the following transmission:

Archer announces the following: A new all-in-one training aid to teach yov error you the International Morse Code.

Note that the error sign (dididididididit) was used in this text.

Follow the procedure outlined in Lesson No. 1 before going on to Lesson No. 8.

LESSON NO. 8

We shall now learn the most commonly used signals employed in code communications: End of Message (AR) Attention Invitation to Transmit (go ahead) End of Work (SK) International Distress Call (SOS) Test (letter V) Received, ok (R) Wait (AS) General Call to All Stations (CQ) Best Regards (73)

Listen to:

End of Message	di**dah**di**dah**dit
Attention	**dah**di**dah**di**dah**
Invitation to Transmit	**dah**di**dah**
End of work	dididi**dah**di**dah**
International distress call	dididi**dahdahdah**dididit
Test	dididi**dah**
Received, ok	di**dah**dit
Wait	di**dah**dididit
General call to all stations	**dah**di**dah**di**dahdah**di**dah**
73	**dahdah**dididit dididi**dahdah**

End of message End of message End of message Attention Attention Attention Invitation to transmit Invitation to transmit Invitation to transmit End of work End of work End of work International distress call International distress call International distress call Test Test Test Received, ok Received, ok Received, ok Wait Wait Wait General call to all stations General call to all stations General call to all stations Best regards Best regards Best regards

Copy the following signals:

End of message Best regards Attention End of work Invitation to transmit International distress call Test General call to all stations

Follow the procedure outlined in Lesson No. 1, until you have these characters fixed in your mind. Check your copy with the manual; when you have 3 perfect copies, continue with the second half of Lesson No. 8.

Copy the following:

CQ CQ CQ DE W1ABC W1ABC W1ABC K

This is the general call, transmitted by a station W1ABC, inviting anyone to communicate with his station. Note that we have introduced another signal (DE). This combination of D and E means "from" or "this is", and comes from the French "des". The letter V is sometimes used for "from" or "this is".

LESSON NO. 9

The remainder of your Basic International Morse Code Training Program will be devoted to increasing your code speed. Be sure to copy what you hear. If you make an error, forget it; do not go back to correct a mistake, but go along to the next letter.

Copy the following tube type numbers:

1B3GT, 2C34, 3B28, 814A, 4E27A, 2D21, 5BP1, 6A3, 717A, 841, 849, 832A, 829B, 4CX250B and 4X500A $\overline{AR}$

With your sending key, send type numbers from a tube manual, or write down a collection of auto license numbers consisting of numerals and letters and practice sending these combinations. You may also send the first half of Lesson 9 along with all previous lessons.

LESSON NO. 10

Copy the following coded groups, 5 across and 5 down, to form a square of 25 letters or a cryptogram. Reading across will make no sense, but reading each column from top to bottom yields 5 plain English words.

CCHAH	HSSSA
HHATY	AHIEB
IIBOM	NENVA
RCIMN	DLCES
PKTSS	SLENH
CSSAS	ASDBC
ELHLP	MHARR
NUEOI	IONIE
TMLNL	SRCNS
SPFEL	SEEGT

TBASS	HPSHS	LMSBL
ALLTH	IEMEL	IETEE
IIIEE	LAAAA	SLAGA
LNGEE	LCSVM	TTIIP
SDNRR	YEHES	SSNNS

Follow the procedure outlined in Lesson 1 until you can copy the first half of Lesson 10 perfectly 3 times. Then continue with the second half of Lesson No. 10.

The following cryptograms are for the second half of this lesson.

PRABB	ANYBQ
OOCOO	REEOU
IVINN	EVAXI
NEDED	AEREE
TRSSS	SRSST

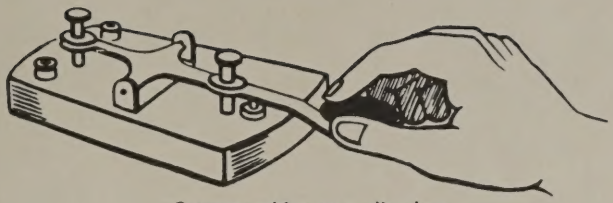
AGMGS	CCBRR
XAAEI	OAOAO
IMIAG	ASADA
OENRN	STTID
MSSSS	TSSOS

LEARNING TO SEND

As you have practiced continually each day, you have, no doubt, already gotten hold of a sending key, a buzzer and a battery. If you have followed the instructions at the beginning of this manual, you have learned to speak the letters, numerals, punctuations and signals aloud, and you have already gotten the rhythm of these characters fixed in your mind. If you are at all musically inclined, you will have little or no difficulty in learning to send with a telegraph key.

A good key is a worthwhile investment – don't buy a toy telegraph set if you're seriously interested in learning the code. The sending key should be connected to a battery and buzzer as shown in the illustration below, or it may be connected to a code practice oscillator equipped with a speaker or headset.

The key should be fastened to a heavy base, or it may be mounted to a tabletop by means of woodscrews, and the key knob should be about 18-20 inches from the edge of the table facing you. Place your



Correct position at sending key

elbow on the table on a line with the key lever, and at a point so that the thumb of your right hand is on the left edge of the key knob. The index finger is at the far edge of the knob, while the middle finger is at the right edge. The other two fingers curve naturally under the palm, and around the knob on the right (See illustration). The wrist should be about 1½ inches above the tabletop and the pressure of the forearm, not the wrist or the fingers does the sending.

Start practicing by sending the letter E, and space properly. Send a series of E's, maintaining proper spacing. Send slowly and evenly – accuracy is more important than speed. Speed will come later. Then send the I, then the S, the H and the 5. When you can send dots (dits) evenly, take the dash (dah) letters. If possible, play the record and send along with it. Send each lesson as it is recorded. Remember, speed comes later, accuracy is more important now. **NEVER SEND FASTER THAN YOU CAN RECEIVE. Good luck.**

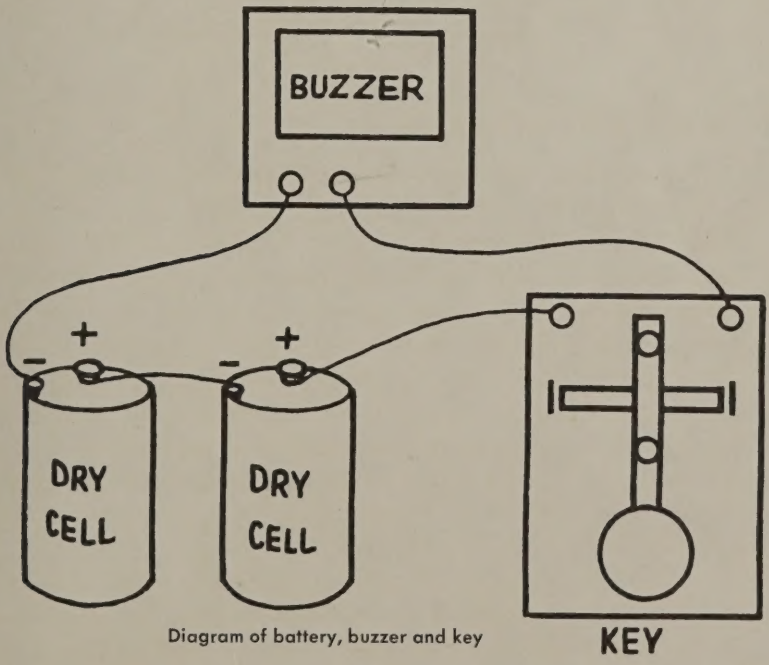


Diagram of battery, buzzer and key

Course Prepared For RADIO SHACK

by

BOB GUNDERSON

call letters: W2JIO

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